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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/530,157

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Gilad Almogy

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07/09/2009

APPLIED MATERIALS, INC.

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EXAMINER

SAKELARIS, SALLY A

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/530,157	Applicant(s) ALMOGY ET AL.	
	Examiner Sally A. Sakelaris	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-36 is/are pending in the application.
- 4a) Of the above claim(s) 1-25 and 37-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/1/2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/1/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election of Group II claims 26-36 in the reply filed on 6/12/2009 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Objections

Claim 35 is objected to because of the following informalities: the status identifier is missing. Applicant should keep in mind that in any amendment filed, the current status of all of the claims in the application, including any previously canceled or withdrawn claims, must be given. Status is indicated in a parenthetical expression following the claim number by one of the following status identifiers: (original), (currently amended), (previously presented), (canceled), (withdrawn), (new), or (not entered).

Drawings

Figures 1a-1c, 2a, and 2b should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 26-28 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Charles et al. (US 6271671).

With regard to claims 26 and 28, in Figure 2 Charles disclose a system for defect localization, comprising: means for providing an electrical signal (40) to at least one conductor (Figure 3 (66)) of a test structure (30); wherein the test structure comprises at least the conductor and electro-optically active material (60, 64, 62) that is positioned such as to provide an indication about the electrical status of the at least one conductor (66); means for illuminating the electro-optically active material of the test structure (Fig. 2 (32)); at least one detector (46), for detecting light scattered or reflected from the electro-optically active material of the test structure; and a processor (lock in amplifier (48)) for processing detection signals from the detectors to locate a defect. (Col. 7 lines 31-41).

With regard to claim 27, Charles et al. teach the means for illuminating illuminates the test structure with polarized light via Figure 2's disclosure of a polarizer (34).

With regard to claim 30, Charles et al. teach that the electrical signal is 3 volts (i.e. about 5 volts) (Col. 6 line 29).

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. Claims 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Charles et al. in view of the product description of a lock in amplifier (Perkin Elmer Technical note, 2000).

With regard to claims 29 and 35, Charles et al. teaches the use of a "Lock in amplifier" (48) in their device wherein the electrical signal is either an AC or DC currents.

Charles et al. do not teach the exact specifications and capabilities of their lock-in amplifier (48) within the reference.

With regard to claims 29 and 31, the product manual entitled: "What is a Lock-in Amplifier" teaches that a lock-in amplifier, in common with most AC indicating instruments, provides a DC output proportional to the AC signal under investigation, thus disclosing an electrical signal that is both an AC and DC current (Pg.1 left hand side).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the device of Charles with the lock-in amplifier of Perkin Elmer as the component's "inherent tracking ability allows extremely small bandwidths to be defined for the purpose of signal-to-noise ratio improvement since there is no frequency 'drift' as is the case with analog 'tuned filter/rectifier' systems." (Perkin Elmer, Pg.1 lower left side).

3. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Charles et al. in view of the product description of a lock in amplifier (Perkin Elmer Technical note, 2000) and in further view of EG&G Princeton applied research product description ("Explore the Lock-in Amplifier, 1983).

The teachings of Charles in view of the Perkin Elmer manual can be seen above.

The pair of references does not teach the particular technical specifications of their lock-in amplifier device that can operate with a frequency range of between 1-100 Hz.

The EG&G product description teaches that a lock-in amplifier has a frequency range limited to 0.1Hz to 200kHz, thus disclosing the 1-100Hz as claimed.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the device of Charles with the lock-in amplifier of Perkin Elmer in view of the benefits recited by the EG&G product manual that it has a low frequency range enabling a broader range of detection. Further the reference teaches that it can measure weak distortion components in the presence of obscuring background noise and directly measure the distortion of a linear system without concern for the spectral purity of the excitation sources which would greatly improve the quality and efficiency of the defect detecting device (EG&G Pg. 1 left side).

4. Claims 32-34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Charles et al. in view of the product description of a lock in amplifier (Perkin Elmer Technical note, 2000) and in further view of Alumot et al. (US 5,699,447).

Applicant should note that regarding claims 32-34 and 36, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

The teachings of Charles in view of the Perkin Elmer manual can be seen above.

With regard to claim 33, Charles teaches that the processor (48) is adapted to process the location of the defect (Col. 7 lines 31-41).

The pair of references does not teach the device that is adapted to acquire images or process those images as recited in claims 32-34 and 36.

Alumot et al. teach an apparatus for inspecting the surface of chips and wafers for defects including a first and second phase of scanning the incident substrate with a laser (Abstract). The reference teaches camera (110), and multiple image processors (1st (7) and 2nd (11)) in Figure 1 for optically examining with a relatively high spatial resolution the suspected locations for the presence or absence of a defect therein.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the device of Charles with the lock-in amplifier of Perkin Elmer alongside the optical detection components of Alumot et al. as the Alumot system provides a method and components for inspecting semiconductor wafers at relatively high speeds and with a

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relatively low false alarm rate avoiding losses and production downtime and increasing overall yields (Col. 1 lines 38-50).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sally A. Sakelaris whose telephone number is 5712726297. The examiner can normally be reached on Monday-Friday 8-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 5712721267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sally Sakelaris

/Jill Warden/
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/PATRICK RYAN/
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